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ORIGINAL ARTICLES.

DISEASE OF THE ACCESSORY SINUSES AS A CAUSE OF INFLAMMATIONS OF THE EYE AND PARALYSES OF THE OCULAR MUSCLES.*

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The purpose of this paper is to emphasize the importance of having the accessory sinuses of the nose carefully examined in all of those cases of inflammation of any part of the eye or paralysis of any of the ocular muscles where the ætiology of the trouble is at all in doubt. While it is true that syphilis and rheumatism are responsible for a very large percentage of the cases of these troubles, I believe it is also true that they are given the credit in a goodly number of cases for which they are not responsible, and I submit that it is not altogether scientific to "give the patient the benefit of the doubt" where syphilis can not be surely excluded, or even where there is a history of syphilis somewhere in the dim past, without first trying to find out if there might be any other ætiological factors in the case. Nor should we conclude that rheumatism is responsible because the patient has at some time suffered with vague pains through some part of his body, without at least investigating those regions where we know toxins may be formed which, if absorbed into the system, are capable of producing these rheumatoid pains.

*Read at the May meeting of the St. Louis Ophthalmological Society.

During the past few years the medical literature of both this country and Europe has contained many articles setting forth the close relations between disease of these sinuses and affections of the eye. Without doubt, it has caused the profession to realize what important factors nasal and sinus diseases are in the production of headaches and asthenopic symptoms. I am inclined to believe, however, that many ophthalmologists do not think of sinus diseases as a cause of inflammations of the eye and of muscular disturbances as frequently as it would be well to do.

When we consider the close proximity and the anatomical relation of the accessory sinuses to the eye, it seems surprising that the latter is not more frequently involved in the diseases of the former than it is. With the frontal sinus forming part of the roof of the orbit, the maxillary sinus part of the floor and the sphenoidal sinus and ethmoid cells part of the internal wall, it is not difficult to understand how an inflammation in any one of the sinuses could set up a periostitis on the other side of the thin plate of bone and involve the tissues in the orbit. And, again, when we recall that part of the blood supply of the sinuses comes from the ophthalmic artery and that a number of the veins from the sinuses empty into the ophthalmic vein, and that there are at least two openings from the orbit into these sinuses, the anterior and posterior ethmoidal foramina, for the passage of these bloodvessels and certain nerves, we can comprehend how sinus inflammation would naturally cause a congestion of the bloodvessels of the eye which might easily result in disturbances in that organ. Without doubt, the net work of veins and lymph passages of these cavities is an important factor in the spread of infection and inflammation; for when they are covered with diseased mucous membrane the trouble can readily follow the course of the vessels into the orbit. In addition to this route, it has been demonstrated that there frequently exist dehiscences in the thin bony walls through which the diseased process could easily spread.

It used to be thought that the sphenoidal sinus was the only one which, when diseased, was liable to affect the optic nerve; but Onodi[1] has shown conclusively by his anatomical preparations that the ethmoid cells may extend back into the sphenoid wings and thus establish a close relationship between them and the optic nerve. From his study of numerous anatomical prepations, he states that the following relations may exist:

"1. The optic canal may be formed on both sides by the sphenoid cavities.
2. The optic canal may be connected on both sides with the posterior ethmoid cells only.
3. The optic canal may form on one side, the sphenoid cavity; on the other, the posterior ethmoid cell.
4. The optic canal on one side may be related either with the sphenoid cavity or with the posterior ethmoid cell.
5. The optic canal may be related on one side both with the sphenoid and with the posterior ethmoid cavities."

Furthermore, he found that whenever the optic canal is thus connected with the posterior ethmoid cell, the septum was "as thin as the thinnest paper." Also that the walls of the sphenoid cavity at the optic foramen, varied greatly in thickness, not only in different subjects, but also on the two sides of the same subject. In one case reported, the wall on one side was as thin as paper while on the other side it was 7mm. in thickness. These facts explain why sinus diseases frequently affect one eye only.

Where the inflammation has spread from the accessory cavity or cavities through the thin plate of bone separating them from the orbit, setting up a cellulitis in the orbit and later on inflammation of one or more of the tunics of the globe, it is easy to understand how the ocular inflammation came about and there is no question as to the relation of the two conditions. This, however, fails to account for a rather large number of cases of uveitis or inflammation of some other part of the eye, *associated* with sinusitis, at least, if not *caused* by it, which occurs without the involvement of the orbital periostium or cellular tissue. Ziem's[2] theory is that the pent up secretions in the bony cavities, by their pressure on the blood vessels, cause a passive hyperemia or engorgement in the orbit. H. M. Fish[3] has modified this theory somewhat and thinks that the orbital circulatory disturbance is brought about through the irritation of the sympathetic, caused by the nasal or sinus inflammation. Possibly the exact manner in which the ocular disturbance is brought about still remains to be determined, but without doubt many inflammatory conditions, the ætiology of which in the past has been unknown, have been caused by disease of the adjoining sinuses, and the future promises rich findings for patient careful workers in this field.

Fish,[3] making it a rule to examine and treat the accessory cavities in all cases of idiopathic eye diseases, even where there

were no nasal evidences of inflammation being present, was greatly surprised at the results. He found a sinusitis to be the cause of some twenty different lesions, viz: an affection of the extra-ocular muscles, peri- and retro-ocular œdema with protrusion, conjunctivitis, chemosis, herpes corneæ, superficial and deep abscess of the cornea, interstitial keratitis, hypopyon, enlarged and sluggish pupil, iritis, cyclitis, choroiditis, subretinal exudate, hæmorrhagic neuro-retinitis, intra- and retro-ocular optic neuritis, vitreous opacities and glaucoma. Other observers have reported occasional cases of most of these diseases, and it would not be surprising that, if a careful examination of the nasal and accessory cavities were made regularly in the treatment of eye diseases, sinusitis should be found to be the cause of many cases where it is little suspected. Probably we have all seen cases of conjunctivitis resist all kinds of treatment until after some nasal condition had been remedied, when the conjunctivitis promptly subsided with little or no further treatment.

It is well known that the germs which are found in some of the most virulent cases of ulcer or abscess of the cornea are frequently found in the conjunctival sac of the normal eye. Evidently something has lowered the normal resistance of the cornea which permits the micro-organisms to become active. Granting either Ziem's or Fish's theory to be true, we can understand how the circulation of the lymph through the cornea might become so affected by an inflammation in one of the adjoining cavities that the resistance would be lowered quite sufficiently to permit the germs to become active.

The uveal tract being very vascular, it would not seem unnatural that inflammations of the contiguous sinuses should cause disturbances here, whether it be directly by contiguity or indirectly by passive orbital venous stasis. Ziem was the first to call attention to the relation of the two conditions. Kuhnt noted the frequent occurrence of the two conditions at the same time in the same individual but while admitting the possibility of the sinus involvement being the cause of the uveitis was not willing to say that it was so, believing rather, that it was a predisposing factor only. The evidence since, however, has become so strong that it is now recognized that there is more than a coincidence in their occurring together.

In addition to Ziem's cases of iritis, which he claimed was caused by sinusitis, and which Kuhnt questioned, Fish[4] has reported a case in which he thinks the connection has been proven

beyond a doubt; and Frank G. Mason[5] reports two cases due to disease of the sinuses. In both patients there had been recurring attacks of iritis in one eye that had caused blindness by occlusion of the pupil. They had been under treatment by able ophthalmologists who apparently had done all for them that could be done, without relief, but had not investigated the sinuses. After removing the anterior part of the middle turbinate in each case, Mason found a muco-purulent discharge, showing clearly that the sinuses were involved. In the one case the second eye was involved shortly after the trouble subsided in the first, and did not subside until after he had discovered that the sphenoidal sinus was involved, when, after removing the rest of the middle turbinate and treating the sphenoidal disease, the eye quieted down very quickly. Inasmuch as some writers claim that rheumatism is sometimes caused by sinus disease, Mason leaves the question open, whether the iritis is caused primarily by the sinus inflammation or secondarily by the rheumatism which the sinus disease had caused. Both patients had rheumatic pains which were promptly relieved by the treatment of the sinuses. He believes that many of the cases of iritis and irido-cyclitis which are supposed to be caused by rheumatism are in reality caused by sinus disease and can best be cured by the treatment of that trouble. Fish is of the same opinion.

Evidence is rapidly accumlating that choroiditis with vitreous opacities is not at all rare as a result of sinusitis. Risley[6] reports two cases of uveitis, one caused by suppuration in the antrum and the other by chronic inflammation in the ethmoidal and sphenoidal sinuses. Fish[4] gives rather extensive histories of six cases of uveitis caused by diseases of the sinuses. A number of cases have been reported by other reliable writers. This makes me willing to report the following case:

W. F. C., aged 22, came to me, March 29, 1906, complaining that the vision of his left eye had been dim about one week and was getting worse. He had no pain in either eye or head, but came on account of failing vision. Stated that he had a similar attack two years before and had taken treatment for two months at that time. Since then had been having no particular trouble. His vision with the right eye was 20/15; with the left, the affected eye, 20/24. Under homatropin his refraction was O. D. +1.50 D. S. giving him 20/15 vision. O. S.+1.75 D. S.⊃+.25 D. C. ax. 90, giving him 20/24 vision. The vitreous in the left eye was quite muddy and there were several large floating opaci-

ties. I could not get a clear view of the fundus but could distinguish several spots of choroiditis on the nasal side. He denied ever having had syphilis, but was placed on mercury bichloride gr. 1/12, three times daily, and the full correction of his error of refraction ordered. April 2nd, his vision was 20/38. He complained of having a neuralgic pain in the left side of his face, over upper maxilla and in teeth, that day. Referred him to a rhinologist who reported that he had a suppurative inflammation of the left antrum. Under proper treatment of this trouble the pain soon subsided. On May 6th he was given Burnham's Soluble Iodine in addition to the mercury bichloride. June 24th the vision with glasses was 18/15—, and July 22nd, it was 18/15+. After the vitreous had cleared somewhat it was found that he had an extensive involvement of the choroid on the nasal side to within about ten degrees of the optic nerve. While the treatment given this patient was that which I would have given a case of choroiditis due to syphilis, I have no reason to doubt his statement that he never had that disease. I believe the sinus disease was the cause of the choroiditis.

Within the past few months a young lady came to me suffering with severe headache over the left eye, thinking her eyes were possibly causing it. Having symptoms of frontal sinusitis I referred her to a rhinologist who found that sinus involved. Treatment of this trouble soon relieved her headache. She has a large spot of atrophic choroiditis on the nasal side of the left eye, due to an inflammation in that eye in 1904. She does not remember of having had much headache at that time, but has suffered considerably with it the past year or two, and I am inclined to think that the choroiditis in her case was due to some involvement of the accessory sinuses at that time, as there is no evidence of any other trouble that might have been responsible for it.

Th. Leber, Schmidt-Rimpler, H. Sattler, Axenfeld, Hirschberg, and Sänger and Wilbrand, in answer to inquiries made by Onodi,[1] reported that, aside from cases of tumors of the sphenoidal and ethmoidal cavities, they had not observed any cases of optic neuritis or atrophy from disease of these cavities, and they believed that visual disturbances from these causes were rare. On the other hand, Mendel, from examinations of numerous cases in Hirschberg's clinic, was led to believe "that almost half of the cases of one-sided optic nerve inflammation are traceable to a nasal source in a wider sense", and gives it as his

opinion that one-sided choked disc is usually due to an affection of the orbit, double sided, mostly to an intra-cranial cause. So, also, Lapersonne stated that "A chief characteristic of neuritis due solely to sinus inflammation is that it is unilateral," and that "a double œdematous neuritis ought rather to make one think of an intra-cranial process." From these and other reports received by Onodi,[1] and from post-mortem examinations he concludes that retro-bulbar neuritis may be the result of suppuration in contiguous sinuses; that it may be cured spontaneously or by internal treatment; or that it may be impossible to cure under these circumstances. Lapersonne states emphatically that optic neuritis is very rarely the result of inflammation of the frontal or maxillary sinuses; that it may rarely occur in connection with ethmoiditis; but that it is in disease of the sphenoidal sinus that it is likely to occur. Fish,[7] however, says that disease of any of the sinuses may cause optic neuritis, and, contrary to Mendel and Lapersonne, believes that sinus disease may cause a double optic neuritis. This is difficult to believe by those who think that the nerve is always involved secondarily by an extension of the inflammatory process by contiguity. Fish's theory, as previously stated, is that the eye is often affected by disturbance of the circulation in the orbit through the sinus disease acting upon the sympathetic. This theory seems to be supported by the fact that frequently the vision improves very rapidly after draining and irrigating the diseased sinus. Thus he notes that Copez's patient, with vision of 1/20, had normal vision on the eighth day; Brawley's, with vision of 1/5 was normal on the fourth day; and Würdemann's, 1/6, was normal a few days later. Mendel's patient, who could only count fingers when first seen, was stone blind at the time of the operation. Light perception appeared the same day and final vision was 2/3. In Bourgeois' patient, the vision improved from 1/50 to 1/4 on the third day and later to normal; and in one of Fish's patients having neuro-retinitis, the vision improved from hand movements to 1/5 in forty-eight hours after draining the frontal sinus. He has found recorded in literature about 100 cases of primary and secondary optic neuritis caused by sinusitis, with all degrees of visual disturbance, from a papillitis with no reduction in vision, to a total loss of light perception. In a series of 36 cases of optic neuritis of his own he found sinus disease present 26 times, in 15 of which improvement of the ocular condition followed drainage of the sinus, showing a direct

causal relation. In the other 11 cases optic atrophy had taken place in some, while others refused to undergo the treatment advised. He points out that sinusitis not infrequently gets well without any treatment and believes that many cases of optic neuritis end favorably on account of the natural drainage of the sinuses. Illustrating this tendency is the case of Bethune, where each time there was a suppression of a purulent discharge from the frontal sinus, there was a decided loss of vision which always returned again when the discharge was re-established. In further support of Fish's contention that disease of any of the sinuses may cause optic neuritis, is the case reported by N. M Black,[8] where a double retro-bulbar neuritis, with relative and absolute scotomata, was caused by inflammation of the frontal sinuses, and which recovered completely under treatment of the sinus trouble.

Hill Hastings[9] reports a case of retro-bulbar neuritis with absolute central scotoma extending from 10 degrees nasal to 22 degrees temporal, and from 20 degrees superiorly to 12 degrees inferiorly, caused by severe suppuration in the ethmoid cells.

The retina is frequently involved with the optic nerve. Thus, in Fish's 26 cases, 5 had hæmorrhagic neuro-retinitis and several others had neuro-retinitis without hæmorrhages in the retina. Posey, Risley and others note the fact that frequently there is considerable œdema of the optic nerve as well as the retina, without any real inflammation.

Concerning the involvement of the ocular muscles in connection with sinus disease, Casey A. Wood[10] says: "Perhaps the most interesting of all the ophthalmic sequels of accessory sinus infections and affections are pareses and paralyses of the extra-ocular muscles. About the occurrence of these there can be no doubt. The ophthalmologist should hesitate to label them either 'rheumatic' or 'syphilitic' or 'idiopathic' until he is assured that his patient is not a sufferer from sphenoidal or ethmoidal disease and that either of these affections, if present, has been adequately treated. The immediate cause of ocular pareses in nasal cases is probably a peripheral infection of the nerve filaments supplied to the muscles involved. This infection may take place both in purulent and simple catarrhal infections of the contiguous cavities."

Of Fish's twenty-six cases with sinus disease, nine, or thirty-three per cent., had involvement of the extra-ocular muscles. Numerous writers refer to the frequency of such pareses. The

trouble may attack a single muscle or more than one and in exceptional cases all of them may be paralyzed. In the latter case the trouble is usually due to involvement of the third, fourth and sixth nerves in the apex of the orbit by an extension of the inflammation from the sphenoidal or ethmoidal sinuses, or else to an inflammation of all the tissues in the orbit. Perhaps many of the cases of paralysis of the extra ocular muscles, the cause of which is attributed to rheumatism or colds, are cases of sinus inflammation. In the case of the superior oblique, the inflammation may spread from the frontal sinus and directly involve the tendon of this muscle as it passes through the pulley which is in close relation to the frontal sinus. I have seen two such cases. The first, L. C. H., a young man about 20 years of age, consulted me July 28, 1905, complaining of a severe pain over the left eye when he used the eyes for near work. Tested under homatropin he accepted +.75 D. S.⊃+.75 D. C. ax. 90 in each eye, giving him 18/15 vision with O. D. and 18/19+ with O. S. He was given +.50 D. S. with the cylindrical correction in each eye. On Aug. 5th he reported that he had been having very little headache since wearing the glasses, but that he saw double when looking in certain directions. The test with Stevens' phorometer showed 5 degrees of left hyperphoria. The different tests indicated that there was a paresis of the superior oblique of the left eye. As it was not annoying him a great deal, I decided to await further developments and asked him to return in a few days. On Aug. 17th he reported that the diplopia had gotten worse and was noticeable in the entire field. At this time he had 10 degrees of left hypertropia. Burnham's Soluble Iodine was ordered, beginning with five drops, to be increased to fifteen, three times daily. After he had taken this several weeks he developed quite a severe attack of hay fever, to which he was subject at this season of the year. The iodine was stopped and he was sent to a rhinologist who treated him for several weeks after which the hay fever subsided and the diplopia gradually diminished. By October 1st the diplopia did not annoy him to any extent, although he still had 3 degrees of left hyperphoria. On February 26th, 1906, he returned and stated that he had gotten along very well since the previous fall until about a week before, when he took a severe cold, and since then had been having intense headaches on the left side. The left eye was much congested. The trouble coming on after taking cold made me think that the headache was due to a sinusitis and he was referred to his rhinologist who reported that the left frontal sinus

was involved. Treatment of this condition promptly relieved his headache. It then became plain to me what had caused the paralysis of the superior oblique the summer before.

The second case was a patient who came on account of diplopia. He had paralysis of the superior oblique of the left eye. He was sent to a rhinologist who found a suppurative inflammation of the left frontal sinus, and treated the condition. The next day he reported that the diplopia was some better and a test with the Maddox rod showed 3 degrees less hypertropia than a previous test had shown. The rhinologist proposed some operative procedures at his second visit which evidently scared him, as he never returned to either one of us after that. He gave a history of having had syphilis four years previously, which may cast some doubt upon the diagnosis of the sinusitis being responsible for the paralysis of the eye muscle; nevertheless, I am inclined to believe that the sinus disease, rather than syphilis, was the cause of the ocular disturbance.

Partial ophthalmoplegia interna is very frequently caused by frontal sinusitis, according to Fish,[11] who has reported numerous cases where prompt relief was afforded by treatment of the sinus trouble. In several, the near point had receded from 10 cm., their normal distance, to 35 cm., and in one case where the near point had receded to 35 cm., it returned to 9 cm. in one hour's time, with no other treatment, after probing the frontal sinus. His explanation is that the sinus inflammation causes circulatory disturbances in the eye and there is a passive congestion of the ciliary muscle which limits its action. He contends that often where, by actual test, the eye is capable of accommodating the normal amount, it is not able to maintain the effort and thus frequently causes asthenopic symptoms, which are promptly relieved by curing the sinus inflammation. A sluggish pupil is also noted in many of these cases.

In order to make a diagnosis of sinusitis it has been thought by some that two symptoms were necessarily present, viz., pain and purulent secretion in the nose. Pain is very likely to be present in the "closed sinusitis," that is where the secretion of the sinuses does not drain away on account of the natural openings being occluded. It is this form that is particularly liable to produce eye complications, and while there is usually more or less pain present, it is often mild and in some cases entirely wanting. On the other hand it is precisely this class of cases that do not have much, if any secretion in the nares, because it cannot escape from the sinuses through the closed openings.

Where there is a good deal of purulent secretion in the nares if it is proof that the cavities are draining well and hence not so likely to produce complications. Engorgement of the turbinates, both middle and inferior, is very suggestive of sinusitis. Three important symptoms of "closed sinusitis" are dizziness, pain, either dull or severe, and nasal congestion. Such diseases as measles, scarlet fever, influenza and idiopathic erysipelas are very liable to cause empyema of one or more of the sinuses. Syphilis is also prone to involve the sinuses and cause empyema. "Nothing more frequent in tertiary syphilis than the nasal lesions," said Fournier. It must not be thought that it is only in purulent affections of the sinuses that it is possible for complications to arise in the eyes, for the catarrhal conditions are often sufficient to cause the same trouble. When we remember how frequent the above named diseases are and in addition how frequently most people suffer with a "common cold" which usually sets up a catarrhal inflammation of the nasal cavities, we can appreciate the danger of the sinuses becoming involved and the importance of ophthalmologists being watchful to recognize eye diseases resulting from such involvement.

LITERATURE.

1. British Med. Jour., Vol. II., 1904.
2. Berlin Klin. Wochenschrift, 1888, No. 37.
3. Archives of Ophthalmology, Vol. XXXV.
4. American Jour. of Ophthalmology, Vol. XXXI.
5. Iowa Med. Jour., Dec. 15, 1907.
6. Penn. Med. Jour., June, 1904.
7. British Med. Jour., Vol. II., 1907.
8. N. Y. Med. Jour., 1906.
9. Annals of Otology, Rhinology and Laryngology, Sept., 1906.
10. Trans. Am. Academy of Ophthalmology and Oto-Laryngology, 1906.
11. N. Y. Med. Jour., 1904.

THE MOMENT OF ENUCLEATION IN SYMPATHETIC OPHTHALMIA.*

By Dr. E. Valude.

Translated by Adolf Alt, M.D.

This question, so often taken up, and which has just lately been the subject of two chapters of the excellent report made this year to the Congress of Ophthalmology by Dr. A. Terson, seems to be pretty definitely settled in most of its aspects. There are some points, however, concerning which opinions still differ.

I shall not recall the history of the fluctuations of opinion as regards enucleation in sympathetic ophthalmia; this is well known, and the excellent report of Dr. A. Terson recounts the essential steps, marked by the famous formula of Warlomont, perhaps a little too absolute, as regards recent injuries, and later on by the excessive reaction of Schweigger, Mauthner, and especially of DeWecker, whose papers protesting against the abuse of enucleation brought about an exaggerated conservatism.

At present it seems that a medium, prudent and sage practice is established everywhere and the recent aphorisms of Maitland Ramsey give a clear rule which A. Terson has improved upon.

Without returning to the undiscussed points, as enucleation of stumps which suffer from recurrent inflammations or when the slightest sign shows of sympathetic ophthalmia, we must say that is good practice to sacrifice eyes which are manifestly lost as organs of vision, especially if they contain a foreign body. I do not except the eyes injured while hunting in spite of Antonelli's reasoning (*Soc. fr. d'opht.*, 1907), because when one has seen (and everybody has) eyes lost incurably in consequence of an exaggerated conservatism, it seems, one has no longer the right to let an eye deprived of vision remain in place, even though it is under the strictest observation.

Nobody to-day ignores the fact that the enucleation, even when made at the very first sign of sympathy, at the least subjective symptom, may already be too late and that in fact it is almost always too late.

Numerous deplorable facts support this truth, and one only should be sufficient to make us prudent, that is to prompt us to

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operate, be it well understood, whenever we have to deal with an eye without any doubt deprived of some useful vision.

This seems in truth to be the only point which to-day deserves discussion. I mean the method of action in face of a sympathetic ophthalmia when the sympathising eye still preserves some useful vision.

Concerning this point the opinions are not at all in accord, and, although agreeing with that of A. Terson that a definite rule cannot be established for the different cases which come under our clinical observation, I think that the publication of certain experiences may prove useful. It is indeed a very delicate condition when there is question of removing an eye which still has some useful vision, and Coppez's doubts are easily understood who wrote in his report to the French Ophthalmological Society in 1890 that "it is assuming a great responsibility to enucleate a sympathising eye which still possesses some useful vision when the fellow suffers from sympathetic ophthalmia and there is no certainty of being able to save it." And, in truth, we know that we are never certain to save it.

Yet, fearing the greater misfortune, Coppez advises enucleation in such cases; neither would a great many clinicians dare to preserve an injured eye which still sees some, when it is proven that it produces sympathetic ophthalmia.

Here are two observations which I think may throw some light on this question.

Case 1. The child M., a little girl 6 years old, has injured her right eye with a pen filled with ink in October, 1906. For six weeks she was treated by an oculist, who at the end of this period pronounced her cured and only asked to have her see him from time to time. There remained from the injury an anterior synechia of the iris, showing that the cornea had been perforated.

On December 23d of the same year the child was brought to me, not because the parents were disquieted on her account, but simply because they wanted my opinion as to the injured eye.

On that day I was at once struck by the appearance of the left (uninjured) eye, which was evidently just being attacked by sympathetic ophthalmia. The whole eye was a rose-pink, the iris was without lustre and swollen, the vitreous body dim so that the fundus could hardly be seen, Vision $=\frac{1}{2}$. The right (injured) eye, also, showed some signs of cyclitis, but had still about 1/20 vision.

The enucleation of the right eye, proposed and resolved on

after numerous consultations with other colleagues, was performed on December 26th.

In spite of this and in spite of the strict observance of the classical treatment, mercurial inunctions, atropin and darkness, the uveitis in the left eye progressed with the usual symptoms. The vitreous body became more and more opaque, and no details of the fundus could be seen. The iris became discolored, showed discrete protrusions, and became adherent to the anterior lens capsule and the anterior part of the lens became slightly dim. Vision fell below 1/10.

The inunctions being continued a slight improvement of vision was gradually noticed. In March, 1907, V=1/10.

I then began to make subconjunctival injections of one cubic centimetre of a 1 in 5,000 sublimate solution, first alone into the sympathetically affected eye on April 20th and 26th, and then, also, into the scartissue resulting from the enucleation in the right orbit on May 3d, 10th and 17th.

The media became visibly clearer.

The injections were resumed on July 18th and 26th, on account of a relapse of iritis; the iris which had cleared up, had become again lustreless and swollen.

On September 17th, 1907, I noticed another phenomenon, an infiltration of the cornea, an isolated patch, situated in the lower quadrant of this membrane; the remainder of the cornea was clear and the iris showed nothing new. Two injections were made into the left eye which seemed to exert no influence on this corneal patch, but the fundus became visibly clearer.

In November, 1907, the following condition was noted in the left eye: The interstitial corneal infiltration is reduced to a small round spot; the iris is pretty free, but adheres to the lens; the fundus of the eye can be seen although the vitreous body is still somewhat opaque. V.=3/10.

At the end of the following December a slight relapse occurred during which the fundus became visible and the eye became red. One injection brought the eye back to the previous condition and since then things have remained stationary with V.=3/10.

This observation proves that enucleation has but a mediocre effect on the sympathetic ophthalmia when it is once started. In fact, the sympathetic symptoms in this little girl have not only cleared up but feebly, but have returned a number of times.

In the case following this, on the contrary, we will see that, although the sympathising eye was preserved, the sympathetic

ophthalmia progressing in the same manner, has not led to absolute destruction.

Case 2. The child T., 5 years old, injured the right eye with a fork. The wound penetrated the corneal limbus in the inner lower segment; prolapse of iris. For 24 hours the child did not tell anybody and the parents knew nothing of the accident. Then simple compresses were put on.

Two weeks later, May 22, 1907, the child was brought to us in the clinic of the Quinze-Vingts. I cut off the prolapse, and injected one cubic centimetre of a 1 in 5,000 sublimate solution, although the eye did not appear infected. Atropine, bandage.

May 24th. No infection. Atropine continued and at the end of the month the eye seems perfectly well.

June 27th. The child is brought back to us. The injured eye is red and the left eye shows a slight circum-corneal injection. Atropine, inunctions, black bandage.

July 18th. New attack of circumcorneal injection in the left eye. The same treatment and eye becomes quiet.

August 8th. The left eye shows a new attack, but much stronger; the pupil is misshaped with some pigment deposits on the anterior capsule; the iris is dull and greenish, the anterior chamber diminished. I make a subconjunctival injection in both eyes.

August 12th. Status idem. Injection in the left eye.

August 16th. Slight improvement. Injection in the left eye, atropine, inunctions.

August 22nd. Marked improvement. Atropine.

September 2nd. Conditions very satisfactory; treatment abandoned.

September 16th. Relapse, cured by two injections on September 16th and 19th.

Since then a slight relapse occurred in the left eye, which yielded simply to atropine, and another on a little stronger which necessitated a subconjunctival injection. Since the end of November, 1907, the two eyes have remained the same without any sign of inflammation.

Their condition is as follows:

The right (injured) eye presents an artificial coloboma of the iris in and downwards. The lens shows fine point-like opacities. The cornea is in places slightly opaque, and the iris a little dull. The vitreous body is slightly dim. No hypotension.

The left (uninjured) eye shows a horizontal band of dimness in the cornea. The pupil is barely movable and its edges are

ragged; there is some pigment deposit. The iris is "bombé," somewhat discolored and shows the marmorization characteristic of sympathetic uveitis. The lens is slightly opalescent.

The child gives no useful answer as to the visual acuity; but it can read and see better with the left eye than with the right. At any rate the vision of the injured eye is certainly fairly good.

These two observations show that the subconjunctival sublimate injections, which Abadie advised, are of great usefulness in the mercurial treatment of sympathetic ophthalmia. At this time, and while we await a specific serotherapy, they are highly to be recommended. In children, especially, I think it will be advantageous to continue inunctions at the same time with the injections. We have employed them either in the sympathized eye alone, or in this eye and the orbital scar left after enucleation of the fellow eye.

What, however, I wanted to show here, was that confirmed sympathetic affections of a grave kind and characterized by that discoloration of the iris so peculiar and so much to be dreaded, have been stopped or cured without enucleation of the sympathizing eye, to which I could not persuade myself while it was seeing (Case 2). I believe that when the sympathizing eye has produced its noxious action, when the second eye is once infected, it is of little value to sacrifice it. In my Case 1, in spite of the enucleation, the sympathetic cyclitis of the other eye has nevertheless gone on with frequent attacks, which even differed in their character, since even the cornea did not escape.

In fine, I believe that before any sympathetic symptom has arisen we should sacrifice every injured eye which has lost vision; if we wait for the first signs of sympathy it may be too late and is probably also useless. Driven by one's conscience one may even then enucleate, but I am not certain that the course of the sympathetic ophthalmia will thereby be modified.

In every case, as concerns injured and sympathizing eyes which still see, I declare that we must save them, on account of the uncertain effect of the enucleation on a manifest sympathetic ophthalmia.

To be very radical before any symptom of sympathetic ophthalmia has made itself known, to sacrifice every doubtful injured eye, not useful as an organ of vision, to be very conservative, on the contrary, as regards an injured eye that still sees, to preserve it at any price, that it seems to me, is a good practical rule in the treatment of injuries of the eye.

I add that by radical operation I mean enucleation. Simple

evisceration is in my opinion the operation of choice in panophthalmitis where its results are marvelous on account of its simplicity and the constant absence of reaction. On the contrary, in sympathetic cyclitis, besides being less certain, this operation has the fault to be followed by a very vivid reaction. The choice is therefore plainly indicated.

For a panophthalmitis adopt evisceration with a sharp spoon which is the simplest operation in the world, and for sympathizing cyclitis enucleation. I usually draw a thread through the cornea to fix and move the eyeball during enucleation. Under these conditions this operation is reduced to a minimum of ease and brevity. All that is necessary to perform it, even to the application of the final conjunctival suture, is a puff of ethyl chloride.

CORRELATION OF EYESTRAIN AND THE FUNCTIONAL NEUROSES.

H. E. Smith (*Medical Record,* May 30) summarizes his article thus:

The ocular conditions which give rise to eyestrain may be refractional, accommodative, or muscular. The result is loss of neuricity. The effects are remote and reflex, and may be expended on any organ, group of organs, the nervous system as a whole, or its separate divisions. It is the little refractional errors which give rise to the greatest trouble; poor vision and eyestrain are not concomitant conditions, but exactly the reverse. It is imperative to have the eyes of all children of school age examined under atropin; not only may health and comfort be conserved, but their whole future may rest on this simple thing. Refractional errors of high degree should be corrected, not because of any reflex disturbances, but to save the eyes from disease and to give their possessor better vision. The investigation of all obscure nervous phenomena should begin with the eyes; often it will be necessary to go no further. Typical sick headache is pathognomonic of eyestrain; if it is not cured, in 99 per cent. of the cases it is the fault of the refractionist. Finally, the disease can not be cured unless the remedy is applied. Nearly right glasses will surely aggravate the symptoms, and relief can be obtained only by mathematically correct lenses in mechanically perfect settings.

MEDICAL SOCIETIES.

THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Meeting of March 12th, 1908.

The President, Mr. MARCUS GUNN, in the chair.

An Orbital Case—for Diagnosis.—Mr. E. E. Henderson.

W. J. P., a female, aged 62, came for treatment complaining of swelling over the left eye, which had been red and painful for 4 months; 3 years previously a somewhat similar swelling had occurred in the same position. On examination a firm nodular mass could be felt, extending along the whole breadth of the orbit above the globe, apparently connected with the lacrimal gland. The diagnosis lay between new growth, chronic dacryo-adenitis, and chronic cellulitis.

An unusual form of Choroido-Retinitis.—Mr. J. F. Cunningham.

A patient, under the care of Mr. Lawford, was admitted to St. Thomas's Hospital complaining of defective sight which had commenced 7 months ago in the form of a luminus cloud when looking at a light. The vision in the left eye was the first to fail, and in both at the present time it was 1/60. Mercurial inunction and iodide of potassium internally was the form of treatment applied, but no improvement was yet noticeable.

The ophthalmoscopic appearances, which were similar in the two eyes, presented a whitish area surrounding the disc and extending some distance to the nasal side, upwards and downwards, and to a less degree on the temporal side; in this there were some transparent areas through which the choroid was visible. Vitreous opacities and some disseminated choroiditis could also be observed.

The fields of vision showed a large central scotoma in each eye, the loss extending also to the upper portion of field in the right.

A case of Retinitis.—Mr. G. H. Goldsmith.

This case was shown at the meeting of the Society held in January last. The condition of the right eye was unchanged, and there were still some deposits on Descemet's membrane. The patch below the left macula has diminished in size and is surrounded by a halo of radiating white streaks which was not present 6 weeks ago.

A Vascular Coil passing forwards into the Vitreous.—Mr. M. L. Hepburn.

F. C., male and negro, aged 20, came for treatment on account of some chronic conjunctivitis. On examining the left eye a vascular loop was seen to spring from the upper part of the disc and pass forwards into the vitreous for a short distance. Vision and other parts of the eye normal.

Punctiform remains of Pupillary Membrane in both eyes.—Mr. A. Hugh Thompson.

M. U., aged 26, a dressmaker, came complaining of defective sight. R. V. 6/18 with correction improved to 6/12, L. V. 6/30 with correction improved to 6/18. In the centre of each pupillary area and situated apparently on the anterior capsule of the lens, is a collection of small round brownish dots, and close by is a whitish opacity which is more deeply placed beneath the capsule. No history of past iritis, and nothing else abnormal discovered.

A case of (?) Albuminuric Retinitis in a child aged 7 years.—Mr. Arnold Lawson.

This case was exhibited on December 13th, 1906, before the Society. The child had been under constant observation from that time, and a steady improvement had been maintained. The vision in both eyes had improved to 6/9 with correction, and the ophthalmoscopic examination showed the disappearance of the macular stellate figures and the numerous white patches, leaving some superficial scarring and pigmentary mottling. The discs remain white, but the arteries are now of normal size or nearly so, and the previously shrunken fields have expanded to their full size. Albumen was only once found in the urine during 1907, although repeatedly searched for.

A case of (?) Parinaud's Conjunctivitis.—Mr. Arnold Lawson.

A young man, with a 12 months' history of discharge from the eyes and photophobia. There were large cockscomb excrescences

of hypertrophied follicular tissue occupying almost the whole of the retrotarsal folds in both lids of each eye. There were enlargement of the preauricular and cervical glands, a culture revealed the *streptococcus pyogenes longus,* and these signs, in the absence of direct evidence of tubercle in the pathological examination of a portion of the growth, led to the diagnosis of Parinaud's conjunctivitis.

PAPERS.

A case of Microphthalmia.—Mr. H. H. B. Cunningham.

Girl, aged 13, no history of eye affection in the family except that one brother was myopic. The child was small for her age and showed some evidences of rickets, but there was no mental defect or deformity of any kind. The orbits were of equal size, but the left upper eyelid was smaller than the right and drooped slightly. Movements of the globes were full. The left cornea measured 2.5 mm. less than the right, the left lens was cataractous, and there was a posterior cortical opacity in the right. There were no colobomata. The patient was myopic, but the vision of the right was only finger counting at 1.5 metres, while in the left there was only perception of light.

Optic Neuritis in Cerebral Tumors.—Adjourned discussion.

After Mr. Paton had briefly referred to some slight re-arrangement of the statistical figures, Mr. Parsons resumed the discussion. He considered that the statistics collected by Mr. Paton were very important, because of the accuracy of the observations, and pointed out that there was some discrepancy between his results and those of Edmunds and Lawford, while Uhthoff, on the other hand, supports the view expressed by these latter observers. Mr. Parsons did not think that the star-shaped figure at the macula was necessarily an evidence of the severity of the neuritis; and he was disposed to think that this appearance occurred more commonly in children than in adults.

Sir Victor Horsley dealt specially with the question of homolaterality of the swelling of the disc in relation to the tumor, and strongly opposed Mr. Paton's conclusions on this point. He said the age of the swelling must be studied, and not merely the maximum engorgement of the papilla; he also suggested that more attention should be paid to the part of the disc at which the neuritis originated. He referred to the opening of the dura mater, where the mere relief of pressure produced subsidence of the optic

neuritis, and he agreed with Mr. Paton that the cause of the swelling was not of vasomotor origin.

Sir William Gowers, who was unable to be present, sent a communication, in which he expressed himself in agreement with Sir Victor Horsley in regard to the homolaterality of the swelling and the tumor.

Dr. Beevor remarked that, from his own observations, he was led to the conclusion that the optic neuritis was most severe on the same side as the tumor.

Dr. Farquhar Buzzard pointed out that Sir Victor Horsley's conclusions were not based upon any definite figures, whereas Mr. Paton's recorded a series of carefully observed cases, from which it appeared that the evidence forthcoming was not yet sufficient to make the homolaterality diagnostically important.

The President's experience inclined him to the view that in the majority of cases of tumor of the frontal lobes there was homolaterality of the neuritis, while in tumors arising further back there was not sufficient correspondence to make the sign of diagnostic value.

Lantern Demonstration of the Venous Connections of Schlemm's Canal.—Mr. Thomson Henderson.

Mr. Henderson pointed out that the three channels of outflow for the aqueous were Schlemm's canal, the supra-choroidal space and the iris, the latter being an absorbing surface only by virtue of its crypts. The vascular supply of the ciliary body was derived from the circulus arteriosus iridis major, and the blood was returned from this system through the venæ vorticosæ except for a small area drained by the anterior ciliary veins.

By means of radial sections cut in series Mr. Henderson was enabled to show that there exist numerous anterior perforating scleral vessels, arranged at definite distances from each other, all of which communicate with Schlemm's canal; he also showed that this system was, through its branches, in connection with the circulus arteriosus iridis major, which therefore in reality constitutes a large venous sinus. The absorptive power of the iris thus became of importance especially in the treatment of chronic glaucoma, where the performance of iridectomy opened up, as it were, a large crypt through which the accumulated fluid could drain away into the venous sinus.

MALCOLM L. HEPBURN.

Thursday, May 7th, 1907.

Mr. Marcus Gunn, the President, in the chair.

CARD SPECIMENS.

Microscopical Sections from the case of Orbital Growth exhibited at the last Meeting.—Mr. E. E. Henderson.

The tumor was removed through an incision in the outer third of the line of the eyebrow; it consisted of five more or less separate nodules encapsuled and joined together by a fibrous sheath, and lay between the skin and tarsal plate. The microscopical section showed the growth to be a round-celled sarcoma.

Lantern for Testing Color Perception.—Dr. Edridge-Green.

A cheaper form of Dr. Edridge-Green's well-known testing apparatus.

A Portable Illuminative Attachment for the Ophthalmoscope.—Dr. Clement Hailes.

In a short tube, attached at an angle of 45° to the front of the ophthalmoscope, is contained a small 2-volt Osram lamp, whose rays fall on the obliquely-placed mirror of the ophthalmoscope, and are reflected into the patient's eye. The current is supplied by a single small accumulator cell.

Nernst-lamp Projecting Lantern for Consulting-room use.—Mr. J. H. Tomlinson.

Calcareous Scar on the Cornea.—Mr. M. L. Hepburn.

A man, aged 54, showed a diagonally-placed band, about 2 mm. broad, superficial and sharply defined, on the central part of the cornea. Although there was no history of foreign body or blow, it was probably a calcareous change taking place in a scar. It did not interfere much with vision.

Aniridia in both Eyes.—Mr. W. H. Jessop.

A female child, 8 years old. In addition to the aniridia there was a lamellar cataract in the left eye, and a dense congenital one in the right, with posterior polar opacity in both.

Glioma of the Retina in the Right Eye of a Boy aged 9½ years.—Mr. W. H. Jessop.

This was a child who attended St. Bartholomew's Hospital suffering with what appeared to be a typical glioma of the retina; the point of special interest in the case was the age of the patient.

PAPERS.

Ptosis Operations.—Dr. Freeland Fergus.

The general lines of operative procedure adopted for the relief of this condition were discussed under four headings:—

1. Production of cicatrical contraction by means of irritation caused by suture.

2. The use of ligature of various materials—metal, thread, etc.—which are left in.

3. Advancement of either the occipito-frontalis or levator palpebræ muscles.

4. Plastic operations.

Dr. Fergus had obtained good results by advancement of the occipito-frontalis muscle, in doing which he was careful to make a large incision along the eyebrow, thus securing a broad attachment of muscular tissue to the edge of the lid.

The operation, as he now usually performed it, consisted in the removal of an elliptical area of tissue from the upper lid, slightly above its free margin, including all the structures down to the conjunctiva; in his later cases he had even found it advantageous to include this latter membrane also. Through the broad incision above referred to, he advanced the occipto-frontalis muscle and attached it to the edge of the lid by means of a deep set of 3 catgut sutures, subsequently closing the skin by a superficial set. Good voluntary opening of the eye was obtained by this operation, and although the lids did not completely close during sleep, Dr. Fergus stated that he had never yet observed any trouble arising from this cause.

Tubercle of the Choroid treated by Tuberculin.—Mr. Ernest Clarke and Sir Almroth Wright.

A healthy boy, aged 14, after playing cricket in the sun, noticed blurring of sight in the left eye. The vision was 6/12 (2 letters), and in the fundus between the disc and the macula was a large oval prominence about a disc diameter broad, and raised to the extent of 3D. The retina in the neighborhood was œdematous, and in parts covered by exudate. No enlargement of

any lymphatic glands could be felt. Five days later the condition was much worse, the vision was reduced to 6/18, there was K. P., and the œdema in the fundus had considerably extended.

Treatment by tuberculin injection, controlled by the opsonic index taken from time to time, was then commenced by Sir Almroth Wright. In all, 21 injections were administered, and the opsonic index, which at the beginning was as low as 0.66, rose to 1.15 after a year's treatment, while all the signs of inflammation completely cleared up, and the vision improved to 6/9. In conjunction with the tuberculin treatment, inunction of oleate of mercury 10 per cent, followed by iodide of potassium, was used during the first 9 months.

Tubercle of the Iris treated by Tuberculin.—By Mr. Ernest Clarke and Mr. Mayou.

G. W., aged 3, attended the Central London Ophthalmic Hospital, under Mr. Clarke, with a history of the right eye having been inflamed 3 months.

The right iris showed a group of nodules at the lower margin, with many new vessels on the surface; and some K. P. was present. In 3 days these spots of K. P. had considerably increased, and the opsonic index gave a reading of 0.45; 1/1000 milligram of T. R. was injected, and in a little over a fortnight the index had risen to 1. During the next 2 or 3 months 1/1000 milligram was administered every 2 or 3 weeks, at the end of which time the index stood at 1.15. The child was admitted again 7 months later for the application of Calmette's test, which gave a slight positive reaction; and after 9 months' treatment altogether all the nodules had disappeared; there were, however, some synechiæ, and the lens became opaque.

No signs of tubercle were found in the chest, but the submaxillary and cervical glands were enlarged.

A case of Arterio-venous Aneurism treated by Ligature of the Common Carotid.—Dr. George Mackay.

This case was shown at the meeting of the Society held in May, 1907, at Edinburgh, as a traumatic arterio-venous aneurism of the right orbit, with pulsating exophthalmos. Ligature of the angular vein had been advised, but Mr. Cotterill preferred to tie the common carotid, which operation was performed on June 18th, 1907, with the result that all the symptoms quickly

subsided, and the patient was quite well when last heard of. The vision, which had formerly been finger counting at 3½ metres, had improved to 6/18.

A case of Phlyctenular Keratitis and Pustular Episcleritis treated by Staphylococcic Injections.—Dr. George Mackay.

Miss E. J. W. consulted Dr. Mackay in October, 1898, when a small pustule was found on the conjunctiva near the inner and lower border of the cornea. This gradually improved under ordinary treatment, and 1 month later the vision in the right eye was 6/9 with correction, while that of the left was 6/24 pt. She remained well for three years, but in March, 1901, a small patch of conjunctival injection appeared at the outer side of the right eye, near the limbus, with some haziness of the adjacent cornea. This cleared up with the same treatment as before, but from this time there were constant relapses in one part after another, during the next 6 years, the longest respite being 12 months. Finally, these phlyctenular elevations developed into larger yellowish nodules with some ulceration of the surface. Tubercle was then strongly suspected, and with this diagnosis in view, on March 5th, 1907, Dr. Ian Stewart ascertained the opsonic index which, for tubercle, was found to be 0.74 and for staphylococcus aureus 1.24. A smear taken from the conjunctival sac revealed many polymorphonuclear leucocytes, no tubercle baccilli, but some staphylococci. Although, on the whole, the indications were not in favor of tubercle, an injection was given, but this being followed by a positive instead of a negative phase, the idea of the affection being of a tubercular nature was definitely rejected. The treatment next adopted was the injection of 1/500 milligram dried staphylococci dissolved in 1 cc. of distilled water, which was followed by a negative phase, but in 24 hours the opsonic index had risen to 1.86. After about 7 injections the nodules had completely disappeared, and there had been no recurrence until January 24th, 1908, when it took a much milder form, being merely of the nature of a slight congestion at the upper and outer part of the limbus. It was, however, thought advisable to give an injection occasionally as a prophylactic; and Dr. Mackay considered it necessary to continue the treatment periodically, even after all signs of inflammatory reaction had disappeared.

MALCOLM L. HEPBURN.

PRELIMINARY PROGRAM OF THE THIRTEENTH ANNUAL MEETING OF THE AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

At Cleveland, Ohio, Thursday, Friday and Saturday, August 27, 28, 29, 1908, all sessions to be held at the Hollenden Hotel.

OPHTHALMIC SECTION.

Address: On Ophthalmology (Subject to be announced later).—Dr. J. B. Lawford, London, Eng.

President's Address: The Limitation of Ophthalmic Practice.—Dr. D. T. Vail, Cincinnati, O.

Sympathetic Ophthalmia following Mules Operation.—Dr. Harold Gifford, Omaha, Neb.

Is Mènier's Disease of Ocular Origin?—Dr. F. Park Lewis, Buffalo, N. Y.

Diseases of the Lacrimal Apparatus, Aetiology and Treatment; with Special Reference to Extirpation of the Sac.—Dr. Chas. S. Means, Columbus, O.

Exophthalmic Goitre.—Dr. Albert R. Baker, Cleveland, O.

Increased Tension in Ocular Diseases of Infancy and Childhood.—Dr. J. E. Brown, Columbus, O.

Ophthalmic Physician and Surgeon or "Oculist and Aurist"—which?—Dr. Lucien Howe, Buffalo, N. Y.

Post Operative Sympathetic Ophthalmitis.—Dr. Don M. Campbell, Detroit, Mich.

A New Method of Tendon Shortening, Presentation of Instruments.—Dr. H. H. Briggs, Ashville, N. C.

Pseudo-Optic Neuritis.—Dr. T. B. Schneideman, Philadelphia.

Refractive Myopia.—Dr. Francis Valk, New York City.

Operative Treatment of Persistent Glaucoma.—Dr. Percy Fridenberg, New York City.

Upward Dislocations of the Lens of Traumatic Character.—Dr. W. F. Mittendorf, New York City.

Two Cases of Parinaud's Conjunctivitis with Remarks.—Dr. C. Barck, St. Louis, Mo.

Analytical Description of Eye as an End Organ.—Dr. Joseph E. Willets, Pittsburg, Pa.

Hereditary Blindness and its Prevention.—Dr. Clarence Loeb, St. Louis, Mo.

The Mind of the Patient.—Dr. Sam C. Norris, Anderson, Ind.

Metastatic Carcinoma of the Choroid—a critical study with case report.—Drs. Geo. F. Suker and Lorenzo N. Grosvenor, Chicago.

The Calmette Ocular Tuberculin Reaction for the Diagnosis of Tuberculosis.—Dr. Geo. F. Keiper, Lafayette, Ind.

An Epidemic of Pneumococcus Infection and Remarks on Acute Conjunctivitis.—Dr. Adolf Alt, St. Louis, Mo.

Superficial Keratitis.—Dr. T. W. Moore, Huntington, W. Va.

SYMPOSIUM.—OPHTHALMIC PEDAGOGY.

Teaching of Ocular Pathology.—Dr. C. A. Wood.

Refraction.—Dr. Edward Jackson.

Ophthalmology for Students of General Medicine.—Dr. Lenatus Connor.

PROGRAM OF THE FORTY-FOURTH ANNUAL MEETING OF THE AMERICAN OPHTHALMOLOGICAL SOCIETY.

The 15th and 16th of July, at the Fort Griswold House, London, Conn.

Sympathetic Ophthalmia. Report of two cases.—Dr. E. S. Thomson.

Report of two cases: (1) Sympathetic Irritation. (2) Sympathetic Inflammation, Microscopic Specimens by Dr. Oatman.—Dr. Dunbar Roy.

A Description of Cases of Shrinkage of the Eyeball with Observations on the Processes Underlying Atrophia Bulbi in General.—Dr. W. G. M. Byers.

An Unusual Congenital Corneal Formation.—Dr. Burton Chance.

Recurrent Traumatic Erosion of the Cornea. Report of a Case Due to Lacrimal Stricture.—Dr. R. J. Curdy.

Report of Two Cases of Diffuse Interstitial Keratitis in Acquired Syphilis.—Dr. Jno. T. Carpenter.

Thyroid Extract in Keratitis. Report of two cases successfully treated.—Dr. McCluny Radcliffe.

Extraction of Cataract with a Lance-shaped Keratome.—Dr. J. H. Claiborne.

The Treatment of Immature Cataract.—Major Henry Smith, of the H. M. Indian Medical Service (by invitation).

An Attempt to Determine the Normal Range of Accommodation at various ages; being a revision of Donders' Experiments.—Preliminary communication by Dr. Alexander Duane.

The Clinical Importance of Relative Accommodation.—Dr. L. Howe.

Some Practical Points Regarding the Use of Prism Glasses.—Dr. B. L. Millikin.

Strabismus from the Operative Standpoint.—Dr. P. A. Callan.

The Interpretation and Teleology of Nystagmus.—Dr. Percy Fridenberg.

Sudden Obstruction of Central Artery of Retina with Report of Cases.—Dr. Geo. E. de Schweinitz and T. B. Holloway.

Embolism of a Macular Artery and Thrombosis of Superior and Inferior Arteries in a Case of Embolic Softening of the Brain.—Dr. Wm. T. Shoemaker. (With pathological examination by Dr. C. M. Hosmer.)

Case of Cyanosis Retinæ with Congenital Patent Foramen Ovale and Pulmonary Stenosis.—Dr. H. H. Tyson.

Angioma of the Choroid.—Dr. A. Quackenboss. (Pathological examination by F. H. Verhoeff, M.D.)

The Effects of Decompressing Trephining on Brain-tumor Optic Neuritis.—Dr. G. E. de Schweinitz.

A Simplification of de Grandmont's Operation for Ptosis.—Dr. S. Theobald.

The Merits of the Motais Operation for Ptosis.—Dr. C. H. Beard.

Report of a Case of Restoration of Sight after One Month's Blindness from Glaucoma.—Dr. J. L. Minor.

Case of Hæmorrhage from the Cornea in Glaucoma.—Dr. T. R. Pooley.

Ocular Affections Associated with Disease of the Sinuses Contiguous to the Orbits.—Dr. S. D. Risley.

Report of a case of Bilateral Retrobulbar Neuritis after Ethmoiditis.—Dr. A. Knapp.

Mixed Streptococcus and Pneumococcus Infection of the Orbit and Adjacent Sinuses.—Dr. C. S. Bull.

Adeno-carcinoma of Orbit.—Dr. T. R. Pooley.

Metastatic Carcinoma of the Orbit with Involvement of the Ocular Muscles.—Dr. E. A. Shumway.

Angioma of the Orbit with Invasion of the Globe along the Ciliary Nerves.—Dr. Alex. Quackenboss. (Pathological examination by F. H. Verhoeff, M.D.)

The Increasing Importance of Tuberculosis as a Cause of Ocular Disease. The Newer Methods of Diagnosis and the Treatment.—Dr. G. S. Derby (by invitation).

Demonstration of Opsonins in the Aqueous Humor.—Dr. A. Knapp.

ABSTRACTS FROM MEDICAL LITERATURE.

By W. A. Shoemaker, M.D.,
St. Louis, Mo.

AUTOINTOXICATION.

A Further Contribution to the Possible Relationship of Autointoxication to Certain Diseases of the Cornea and Uveal Tract.

G. E. de Schweinitz (*Jour. A. M. A.*, June 20) reports two cases of keratitis, one of disseminated exudative choroiditis and one of relapsing uveitis (irido-choroiditis) where it seemed probable that autointoxication played an important role in the production of the trouble. Also, one case of relapsing iritis where there were no evidences of autointoxication, and a case of central exudative choroiditis with questionable autointoxication, in which, however, there existed a relationship between the choroidal changes and a furunculosis with which the patient suffered.

Careful general and laboratory examinations were made by Dr. Charles A. Fife, whose findings in one case are incorporated in the article to indicate the character of the analyses and the care under which they were made.

The author concludes his article as follows:

I come now to consider what conclusions may be deduced from the studies just presented.

1. Is there any known disease of any of the histologic systems of the eye which of itself would justify the inference that an intestinal autointoxication is present? Certainly not, because, in the first place, we have no definitely certain knowledge of any specific intoxication depending upon the non-elimination of metabolic products, and, in the second place, the clinical pictures of ocular diseases, for example, of the uveal tract, may be identical, although their ætiology may be widely different.

2. Have laboratory examinations isolated any definite toxin to the influence of which could be attributed any of the diseases of the eye at present under consideration? They have not. Hence, if such a criterion of the diagnosis of an autointoxication is necessary, as I have already stated, none of the cases recorded could be regarded as expressions of metabolic disorders.

3. Is it worth while, negative answers having been given to questions 1 and 2, to pursue the line of investigation in the cases

under consideration? It would certainly seem so. At least we find or do not find the evidences of intestinal putrefaction and become acquainted with the patient's nitrogen metabolism. If the metabolism is abnormal it may be restored to the normal by a dietetic regimen, which could not be worked out in the absence of the data furnished by such examinations, with brilliant results, as for example, in Cases 1, and 3, and striking, if not brilliant, in Case 4.

What I particularly wish to emphasize is that while there must be, again to quote Taylor, no loose interpretation of the facts of metabolism and their relation to disease, certain uveal tract and corneal affections should be sharply separated from the perfunctory examinations which they have only too often received, and from the equally perfunctory and insufficient therapeutic measures which have been accorded to them, and that the investigations along lines already indicated, which have also been urged by Elschnig, Kraus, Groyer, Stephenson, Spicer. Cross and other writers, should be commended and pursued. As Dr. Goldthwaite recently stated in a most scholarly and illuminating address on the treatment of non-tuberculous joint affections, investigation of each case and not routine medication is what is required. If as he has demonstrated, many cases of non-tubercular infectious arthritis, formerly vaguely attributed to rheumatism, are really due to foci of infection in the accessory sinuses, the teeth, the tonsils, and possibly to bacterial activity in the intestines, and that removal of such foci opens the way to cure, the same may be true of the ocular diseases now being considered. Indeed, we well know that some of them, notably cases of uveitis, are caused by infections which pass from the pharyngeal ring, the tonsils, the alveolar processes and the air sinuses.

To make our investigations complete we should add to them such data as may be gleaned from chemical examinations of the body secretions, notably those of the kidney and the intestinal tract, but these examinations must be thorough, and in order to indicate the thoroughness and care with which they should be undertaken, the detailed laboratory results have been recorded.

Finally, I wish to call attention to another matter, which has not escaped the attention of other clinicians, and to which I have made reference on another occasion, namely, a certain relationship which exists between the outbreaks of uveal tract disease, notably chorioiditis, and lesions of the skin. This was a noteworthy feature in Case 3. In this patient when the skin affection

was evident the eyes were better, and *vice versa.* Among those patients to whom reference is made in a previous paper, one for example, had in the right eye a localized plastic chorioiditis near the macula. Two years later an exactly similar lesion developed in the fellow eye, and again two years later a sharp attack of herpes zoster, and on this occasion the chorioid remained unaffected. In another patient plastic chorioiditis appeared to alternate with an attack of eczema of the face, while in the last case recorded in the present series, during the development of facial furunculosis, the eye was quiet, but on the subsidence of the furunculosis the earliest symptoms of chorioidal change began, which yielded, however, very promptly to active treatment, without the development of pronounced lesions in this membrane. This association of eczema, herpes zoster, acne and chorioidal disease appears to be more than a coincidence. If it be true that an intestinal intoxication may sometimes be interpreted in an effort of elimination by the development of a skin disease, for instance, one of the three named, is it not probable it may have a similar interpretation by the development of chorioiditis or uveitis, and that sometimes the toxin is responsible for the skin lesion and on another occasion in the same patient for the uveal tract affection?

THE CALMETTE OCULAR REACTION TO TUBERCULIN.

Harry C. Parker (*Jour. A. M. A.*, June 27) offers the following conclusions concerning the Calmette ocular reaction to tuberculin:

1. The Calmette ocular tuberculin test is of as great diagnostic importance as any other single test.

2. A positive reaction is indicative of a tuberculous focus somewhere in the body.

3. The test is uncertain in patients under 2 years of age, in whom the cutaneous test of von Pirquet is most certain.

4. The tests fail in advanced cases of tuberculosis, but there is little need of it here for diagnostic purposes.

5. The initial instillation should be preferably under 1 per cent. strength, in order that severe inflammatory conditions may not follow its use.

6. If necessary to make the second and stronger test the instillation should be made in the eye not previously used.

7. The consensus of opinion seems to be against using the test in an eye not wholly normal.

8. After-complications have occurred from the use of the test, but these have entirely cleared up in a varying length of time. These conditions are not so frequent when the initial test is made with a solution under 1 per cent. in strength.

9. Recent investigations have shown a greater number of ophthalmic affections due to tuberculosis than formerly supposed, and in the Calmette reaction we have a simple means of differential diagnosis which should be thoroughly tried.

10. The ocular reaction is especially valuable for ascertaining the tuberculous nature of cases of phlyctenular keratitis and conjunctivitis, espiscleritis and scleritis, chronic iritis and iridocyclitis, interstitial keratitis, and chorioiditis.

11. A 1 per cent. solution of Koch's "old" tuberculin is nearly as good as the Calmette solution for diagnostic purposes.

12. The test in the hands of various observers has given such uniformly excellent results that its value is practically assured.

THE EYE AS A CONTRIBUTING FACTOR IN TUBERCULOSIS.

F. Park Lewis (*Jour. A. M. A.*, June 13) makes the following propositions and believes that the conclusions on which these premises are based have a practical application:

1. Errors of refraction, or marked muscle imbalance, may so disarrange the nervous functions that gastric or intestinal disturbances may result, and metabolism be retarded in consequence, with lowered resistance and increased susceptibility to infection.

2. The continued existence of such conditions, especially in the neurotic, may so lower the vitality as to retard recovery from tuberculous infections of the lungs.

3. Relief of the abnormal visual conditions is a necessary prerequisite to recovery from pulmonary disease.

4. In view of these facts the complete examination of a suspected tuberculous patient has not been made until the condition of the eyes, including the refraction and dynamics of the ocular muscles, has been investigated and carefully recorded.